

## Super Typhoon Bart (24W)

Super Typhoon (STY) Bart (24W), the only super typhoon of the season, developed in the Philippine Sea, south of a pronounced Tropical Upper Tropospheric Trough (TUTT) cell and gradually intensified into the most intense tropical cyclone of the 1999 Northwest Pacific season. STY Bart intensified at a climatological rate until reaching a maximum intensity of 140 kt. The system tracked generally northward and impacted Japan's southernmost islands then moved into the Sea of Japan where rapid northeastward acceleration and extratropical transition occurred.

STY Bart (24W) originated as a weak low level circulation south of a broad TUTT cell, just off the east coast of Taiwan. A Tropical Cyclone Formation Alert was issued at 170300Z September. Initially, poor outflow aloft suppressed development of the circulation and weak low level steering flow created a quasi-stationary environment. As the TUTT cell moved northwestward and began to fill, STY Bart slowly developed with improving outflow aloft. The first warning was issued at 171500Z September as a 25 kt system.

STY Bart (24W) initially tracked northwestward and continued to slowly intensify. Shortly after reaching typhoon intensity at 200000Z September, the cyclone slowed its northwestward track as it moved into a region of weak steering flow between the subtropical ridge cells to the east-northeast and west. STY Bart became nearly quasi-stationary with a slight northward drift. The system then drifted slowly northeastward as it continued to intensify at a climatological rate.

As STY Bart (24W) approached Okinawa, it reached Super Typhoon intensity at 211800Z September and began a slow acceleration northward, passing 40 nm west of Okinawa. STY Bart reached a maximum intensity of 140 kt at 220600Z September and remained very intense as it approached northwestern Kyushu, Japan. STY Bart then moved over the Sea of Japan and continued to accelerate toward the northeast. JTWC issued the 29th and final warning on STY Bart at 241500Z September, as the system became fully extratropical and moved over the northern Japanese island of Hokkaido, and continued to move back over the North Pacific.

STY Bart (24W) had a major impact on both military and civilian interests across the northern Philippine Sea and many parts of Japan. The Associated Press and the Japan Meteorological Agency reported 30 fatalities and 1314 injuries across Japan. Over 800,000 homes were left without power and 18,498 homes flooded due to very heavy rain and numerous landslides. Kadena Air Base on Okinawa reported over 28 inches of rain within a 48 hour period.

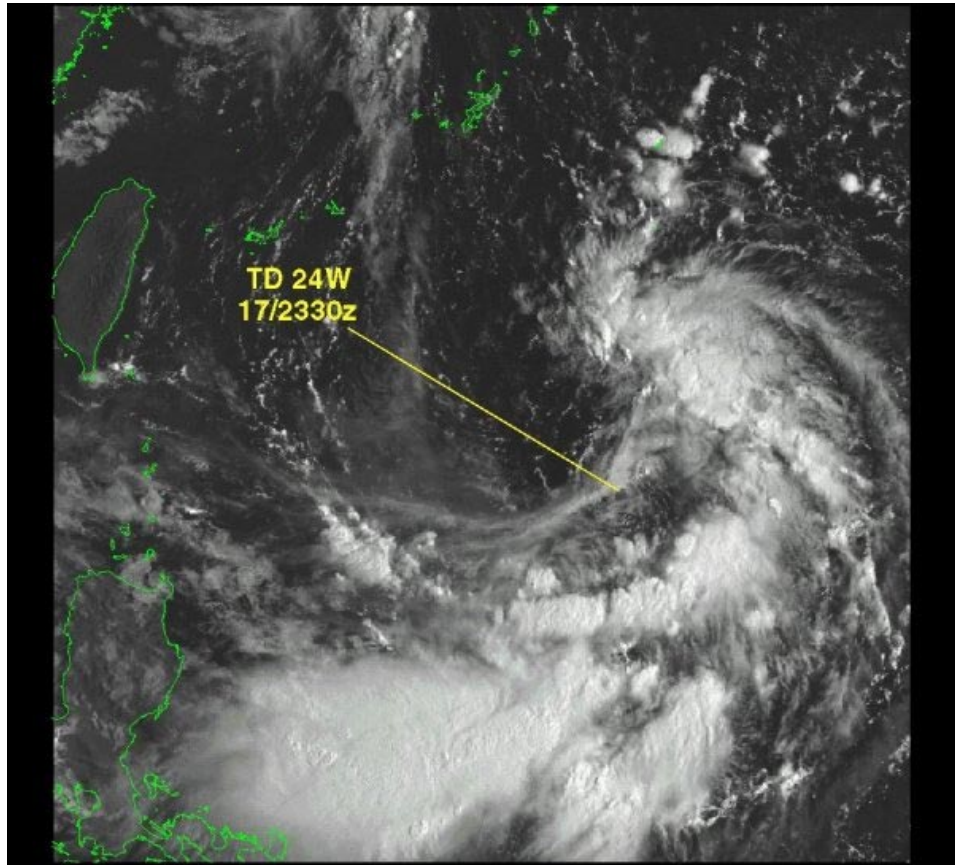


Figure 1-24-1. 172330Z September visible satellite image of STY Bart (24W) as a low-level circulation in the Philippine Sea, south of a TUTT cell (evident by the curved mid-level banding convection to the south and generally clear air to the northwest). This image was only 12 hours after the initial warning. TD 24W was at 25 kt intensity.

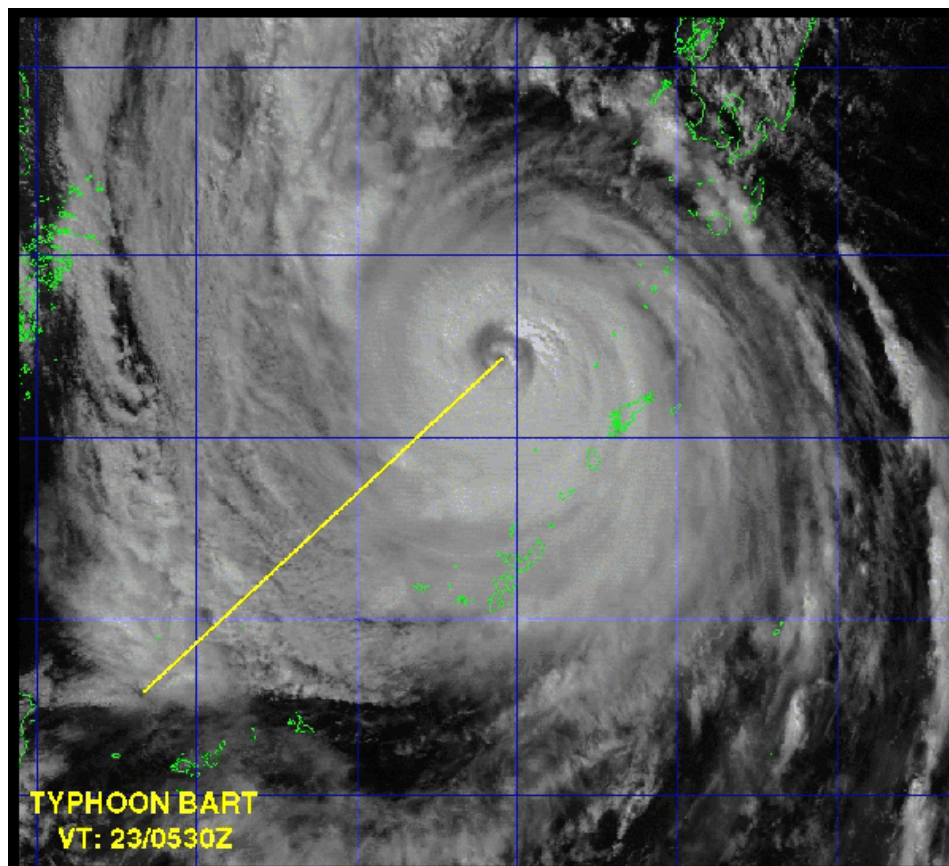


Figure 1-24-2. At 230530Z September, STY Bart (24W) was reaching maximum intensity of 140 kt just west of Japan's southern-most islands. This image reveals a double-eyewall structure.

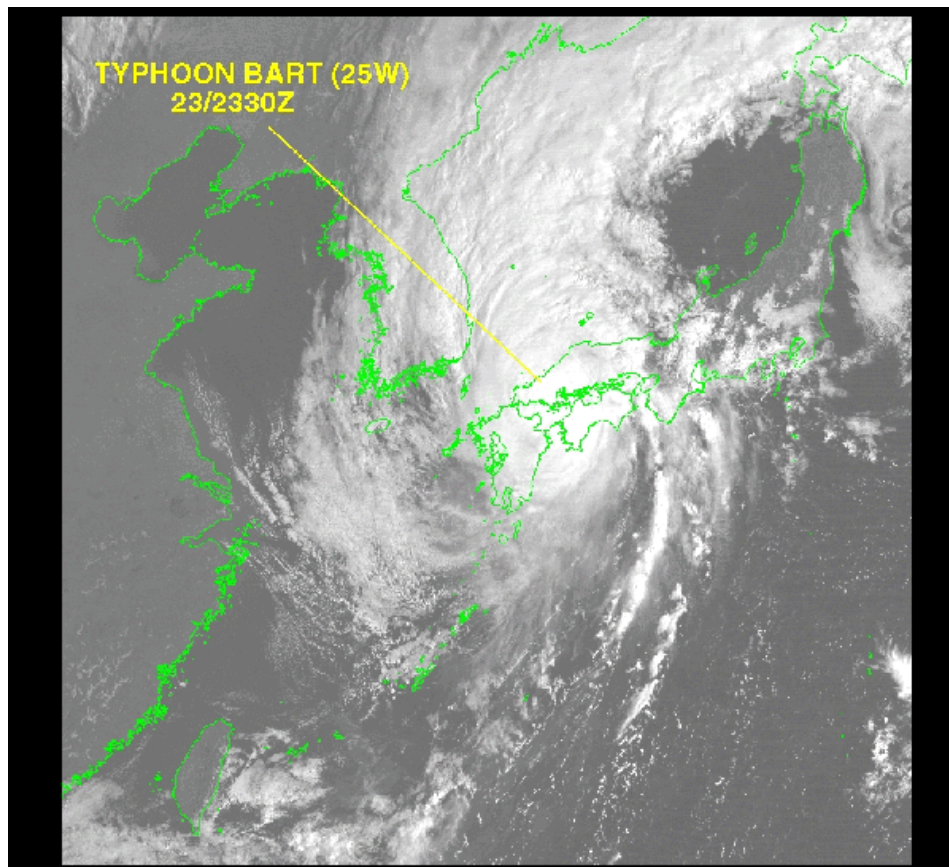


Figure 1-24-3. STY Bart (24W) had quickly passed over Kyushu and was moving into the Sea of Japan in this 232330Z September visible image. Even after significant interaction with land, the cyclone maintained an impressive structure as it moved back over water.

